

MEMORANDUM

SUBJECT: Oxamyl - Review of Pesticide Poisoning Incident Data
Reregistration Case # 0253; Chem. ID 103801; DP Barcode
D229743

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and

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TO: Bruce Kitchens, Occupational & Residential Exposure
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The following data bases have been consulted for the poisoning incident data on the active ingredient oxamyl:

1) OPP Incident Data System (IDS) - reports of incidents from various sources, including registrants, other federal and state health and environmental agencies and individual consumers, submitted to OPP since 1992.

2) Poison Control Centers - as the result of Data-Call-Ins issued in 1993, OPP received Poison Control Center data covering the years 1985 through 1992 for 28 organophosphate and carbamate chemicals. Most of the national Poison Control Centers (PCCs) participate in a national data collection system, the Toxic Exposure Surveillance which obtains data from 70 centers at hospitals or universities.

PCCs provide telephone consultation for individuals and health care providers on suspected poisonings, involving drugs, household products, pesticides, etc.

3) California Department of Food and Agriculture (replaced by the Department of Pesticide Regulation in 1991) - California has collected uniform data on suspected pesticide poisonings since 1982. Physicians are required, by statute, to report to their local health officer all occurrences of illness suspected of being related to exposure to pesticides. The majority of the incidents involve workers. Information on exposure (worker activity), type of illness (systemic, eye, skin, eye/skin and respiratory), likelihood of a causal relationship, and number of days off work and in hospital are provided.

4) National Pesticide Telecommunications Network (NPTN) - NPTN is a toll-free information service supported by OPP. A ranking of the top 200 active ingredients for which telephone calls were received during calendar years 1984-1991, inclusive has been prepared. The total number of calls was tabulated for the categories humans, animals, calls, incidents and others.

OXAMYL REVIEW

Incident Data System

As of September 4, 1996, there were 13 reports in the Incident Data System for oxamyl (PC Code 103801). One of the reports involved 4 cows which died after ingesting oxamyl. Another reported ecological effects. In the remaining 11 reports involving 11 humans, systemic symptoms were reported in 9 and eye effects in 2. One 45-year-old woman committed suicide by ingesting an unknown amount of Vydate®. It was noted on the report that the deceased lived close to a florist/nursery business where the product was stored. A young man in Germany attempted suicide by ingesting approximately 50 mL of the product; he was the son of a horticulturist. He was found unconscious one hour after the ingestion. He recovered after treatment, which included atropinization, dialysis and artificial ventilation. Assuming a 70 kg man, the dose which he received was approximately 714 mg/kg. The LD₅₀ for Vydate® (26% a.i.) in the rat was 37 mg/kg, according to the toxicology 1-liners.

Poison Control Center Data

Although oxamyl is a carbamate, it was not included in the Data-Call-In.

California Data

There were 61 reports in the California data base from 1982 through 1994 involving exposure to oxamyl. In 30 incidents, oxamyl was used alone and was judged to be responsible for the illness; these were tabulated by year and illness type in Table 1.

Table 1: California Oxamyl Incidents, 1982-1994

	Illness Categories				
Year	Systemic	Eye	Skin	Eye/Skin	Total
1982	7	-	-	-	7
1983	4	1	-	-	4
1984	-	1	1	-	2
1985	1	-	-	-	1
1986	-	1	-	-	1
1987	1	1	-	-	2
1988	1	1	-	-	2
1989	-	1	-	-	2
1990	2	-	-	-	2
1991	4	2	-	-	6
1992	-	-	-	-	-
1993	-	-	1	-	1
1994	-	-	-	-	-
Total	20	8	2	-	30

The number of incidents by activity category is listed below:

Coincidental (people exposed while working but not assigned to deal with pesticides) - 10

Applicator - 10

Exposed to residue (includes field workers, structural treatment workers and others) - 5

Exposed to concentrate - 3

Mixer/Loader - 2

Nine of the ten coincidental exposures occurred in 1982 and 1983 when field workers drank water from irrigation pipes, drip lines, etc. which were contaminated with oxamyl. A similar incident occurred in 1988. All of the workers developed systemic symptoms of carbamate toxicosis. Several were hospitalized, one for as long as five days. The number of days of disability and hospitalization for all incidents are displayed in Table 2.

Table 2: Days of Disability and Hospitalization from Oxamyl Exposure in California, 1982-1994

	Number of Days						
	0	1	2	3	4	5	U*
Disability (Number of Persons Affected)	16	4	4	1	-	1	4
Hospitalization (Number of Persons Affected)	24	3	1	-	-	1	1

* Uncertain, information not provided

The comment section of the record noted that personal protective equipment was not used properly in four incidents; a Notice of Violation was issued for three of them. Exposure was the result of accidents, such as spills or hoses breaking, in four incidents.

California Use Information

Data on the number of applications of oxamyl in California from years 1982-1994 are presented in the Table 3 below; no data are available for 1989. The number of reports of systemic illnesses is compared to the number of applications. The total number of incidents for 1982-1989 is compared to the number of applications for those years. A likewise comparison is made for years 1990-1994. Beginning in 1990, California required that uses of all pesticides be reported, whereas prior to that, only uses of restricted use pesticides had to be reported.

Table 3: Incidents/1,000 Agricultural Applications of Oxamyl in California, 1982-1994

	Number of Systemic Incidents	Number of Applications	Number of Incidents/1000 Applications
1982	7 (5 oral)	1335	5.24
1983	4 (4 oral)	1008	3.97
1984	0	1640	0
1985	1 (1 oral)	1359	0.74
1986	0	1353	0
1987	1	2529	0.40
1988	1 (1 oral)	2971	0.34
Total (1982-1988)	14	12195	1.15
1990	0	4557	0
1991	4	5287	0.76
1992	0	5611	0
1993	0	6910	0
1994	0	6981	0
Total	4	29346	0.14

The ratio of incidents/1,000 applications for years 1982-1989 is comparable to some of the more toxic organophosphate and carbamate insecticides evaluated in the Acute Worker Risk Strategy. See Table A5 of the December 5, 1994 Memo from Jerome Blondell to Joshua First. However, the oxamyl ratio is based on relatively few incidents and very limited usage. Therefore, it was not selected for follow-up with the Poison Control Center data. The median for 29 pesticides in which the number of poisonings in handlers and field workers only was compared to the number of applications was 0.41. Parathion, which had the highest ratio, was 1.52.

NPTN

Oxamyl was number 115 on the top 200 active ingredients for which NPTN received calls from 1982-1991. There were 152 calls reporting 35 incidents; 28 were in humans, 2 in animals and 5 in others, such as environmental/ecological effects.

Summary

Data on incidents of poisoning after oxamyl exposure are available in OPP's Incident Data System (IDS) and the California Pesticide Illness Surveillance Program. As of September 4, 1996, there were 13 reports in IDS; 11 involving humans, 1 for animals and 1 for ecological effects. There were 9 reports of systemic illnesses, including two which resulted after suicide attempts, and two reports of eye effects. One woman died after ingesting an unknown amount of Vydate® she obtained from a florist/nursery where the product was stored. A young man in Germany, the son of a horticulturist, ingested approximately 50 mL of Vydate® in a life-threatening case; he survived with treatment.

There were 30 reports of illnesses from 1982-1994 in the California data base involving exposure to oxamyl alone; 20 were systemic effects, 8 eye effects and 2 skin effects. The activities in which workers were most frequently engaged during their exposures was coincidental exposure and pesticide application. During 1982 and 1983 when 9 of the coincidental exposure occurred, workers developed systemic symptoms after drinking from irrigation pipes, drip lines, etc. which were contaminated with oxamyl. A similar incident occurred in 1988. Several were hospitalized, one for as long as five days. Ratios of the number of systemic incidents to the number of applications for the years 1982-1989 and 1990-1994 were calculated. Oxamyl had ratios comparable to some of the most toxic organophosphate and carbamate pesticides evaluated in the Acute Worker Risk Strategy, but were based on far fewer cases and very limited usage. For 1982-1989, the ratio was 1.15 and for 1990-1994, 0.14.

Oxamyl was number 115 on the National Pesticide Telecommunications Network's (NPTN) list of the top 200 chemicals for which calls were received 1982-1991. There were 152 calls reporting 35 incidents; 28 were in humans, 2 in animals and 5 in others.

Recommendations

1. The incident data suggest that the potential for exposure by bystanders to this extremely toxic product (rat oral LD₅₀ for a 26% solution was 37 mg/kg) exists at nurseries. OREB recommends labeling should require that containers of oxamyl be kept secure under lock and key to prevent accidental ingestion.
2. Unusually severe, potentially life-threatening reports have been associated with workers drinking water contaminated with oxamyl. If oxamyl is in irrigation water, OREB recommends a warning posted prohibiting its use as portable (drinking) water.

cc: Correspondence File

Oxamyl Chemical File No. 103801

RDI:ActSecHd:FDGriffith:9/11/96;ActBrSrSci:SHummel:9/12/96;ActBrC
h:E Zager: 9/13/96